

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (original) A method of staging and/or diagnosing pre-neoplastic and/or neoplastic states in a mammal, comprising detecting the P2X purinergic receptor expression profile of cells and/or tissue from said mammal and comparison of the profile with a predetermined expression profile of normal cells and/or tissue.
2. (previously presented) A method of determining the aetiology of carcinogenesis in a mammal, comprising detecting the P2X purinergic receptor expression profile of cells and/or tissue from the mammal and comparison of the profile with a predetermined expression profile of normal cells and/or tissue.
3. (original) A method according to claim 1 or claim 2 wherein the mammal is a human.
4. (previously presented) A method according to claim 1 or claim 2 wherein the cells are prostate tissue cells.
5. (previously presented) A method according to claim 1 or claim 2 wherein the cells are breast tissue cells.
6. (previously presented) A method according to claim 1 or claim 2 wherein the cells are obtained by biopsy.
7. (canceled)
8. (currently amended) A method according to claim 1 or claim 2 wherein the cells are obtained from ~~a body~~ a body fluid, from digital rectal examination exudate and/or from semen.
9. (previously presented) A method according to claim 1 or claim 2 wherein detection of the P2X purinergic receptor expression profile comprises use of an antibody reagent.
10. (previously presented) A method according to claim 1 or claim 2 wherein the detection of the P2X purinergic receptor expression profile comprises use of a P2X antibody reagent specific for P2X<sub>1</sub>, P2X<sub>2</sub>, P2X<sub>3</sub>, P2X<sub>4</sub>, P2X<sub>6</sub> or P2X<sub>7</sub>.

11. (withdrawn) A method according to claim 5 wherein the detection of the P2X purinergic receptor expression profile comprises use of an antibody reagent specific for P2X<sub>2</sub> or P2X<sub>3</sub>.
12. (original) A method of diagnosing prostate cancer in a subject, comprising detecting the expression profile of P2X<sub>1</sub>, P2X<sub>2</sub>, P2X<sub>3</sub>, and/or P2X<sub>7</sub> purinergic receptors in prostate cells and/or tissue from the subject using P2X<sub>1</sub>, P2X<sub>2</sub>, P2X<sub>3</sub> and/or P2X<sub>7</sub> antibody respectively, wherein an increase in the intensity of the P2X purinergic receptor expression profile in the prostate cells and/or tissue, compared to the expression profile of prostate cells and/or tissue from a prostate having benign prostate hyperplasia, is diagnostic of the presence of prostate cancer.
13. (withdrawn) A method of diagnosing breast cancer in a subject comprising detecting the expression profile of P2X<sub>2</sub>, P2X<sub>3</sub>, and/or P2X<sub>7</sub> purinergic receptors in breast cells and/or tissue from the subject using P2X<sub>2</sub>, P2X<sub>3</sub>, and/or P2X<sub>7</sub> antibody respectively, wherein a decrease in the intensity of the P2X purinergic receptor expression profile in the breast cells and/or tissue compared to the expression profile of breast cells and/or tissue from the breast of a normal subject, is diagnostic of the presence of breast cancer.
14. (currently amended) A method according to any one of claims 9, 12 or 13 wherein the antibody reagent comprises a polyclonal antiserum.
15. (currently amended) A method according to any one of claims 9, 12 or 13 wherein the antibody reagent comprises a monoclonal antiserum.
16. (currently amended) A method according to any one of claims 9, 12 or 13 wherein the antibody reagent is a suite of polyclonal antibodies.
17. (currently amended) A method according to any one of claims 9, 12 or 13 wherein the antibody reagent is a suite of monoclonal antibodies.
18. (currently amended) A method according to ~~claim 16~~ or claim 17 wherein the suite of P2X receptor antibodies comprises a combination of the P2X receptor sub-types antibodies.
19. (previously presented) A method according to any one of claims 1, 2, 12 or 13 wherein detection of the P2X receptor expression profile is by immunohistochemical means.

20. (previously presented) A method according to any one of claims 1, 2, 12 or 13 wherein detection of the P2X receptor expression profile is by ELISA.
21. (previously presented) A method according to any one of claims 1, 2, 12 or 13 wherein detection of the P2X receptor expression profile is by RIA.
22. (previously presented) A method according to any one of claims 1, 2, 12 or 13 wherein the detection of the P2X receptor expression profile is by Western blot.
23. (previously presented) A method according to any one of claims 1, 2, 12 or 13 wherein detection of the P2X purinergic receptor expression is by detection of P2X purinergic receptor mRNA.
- 24-33. (canceled)
34. (withdrawn) An isolated mammalian cell or tissue sample complexed with a P2X purinergic receptor-specific antibody reagent.
35. (withdrawn) An isolated mammalian cell or tissue sample according to claim 34 wherein the P2X purinergic receptor-specific antibody reagent comprises polyclonal antiserum.
36. (withdrawn) An isolated mammalian cell or tissue sample according to claim 34 wherein the P2X purinergic receptor antibody reagent comprises monoclonal antiserum.
37. (withdrawn) An isolated mammalian cell or tissue sample according to claim 34 wherein the P2X purinergic receptor-specific antibody reagent is specific for P2X<sub>1</sub>, P2X<sub>2</sub>, P2X<sub>3</sub>, P2X<sub>4</sub>, P2X<sub>5</sub>, P2X<sub>6</sub> or P2X<sub>7</sub>.
38. (withdrawn) An isolated mammalian cell or tissue sample according to claim 34 wherein the P2X purinergic receptor-specific antibody reagent is specific for P2X<sub>1</sub>, P2X<sub>2</sub>, P2X<sub>3</sub>, or P2X<sub>7</sub>.
39. (withdrawn) A kit for diagnosing a pre-neoplastic and/or neoplastic state in a mammal comprising components for detection of P2X purinergic receptor expression profile in a sample comprising cells and/or tissue from the mammal and means for comparison of the expression level with a predetermined expression level.

40. (withdrawn) A kit according to claim 39 wherein one of the components is an antibody reagent specific for a P2X purinergic receptor.
41. (withdrawn) A kit according to claim 40 wherein the P2X purinergic receptor antibody reagent comprises a polyclonal antiserum.
42. (withdrawn) A kit according to claim 40 wherein the P2X purinergic receptor antibody reagent comprises a monoclonal antiserum.
43. (withdrawn) A kit according to claim 41 or claim 42 wherein the P2X purinergic receptor antibody reagent is specific for P2X<sub>1</sub>, P2X<sub>2</sub>, P2X<sub>3</sub>, P2X<sub>4</sub>, P2X<sub>5</sub>, P2X<sub>6</sub> or P2X<sub>7</sub>.
44. (withdrawn) A kit according to claim 41 or claim 42 wherein the antibody reagent is specific for P2X<sub>1</sub>, P2X<sub>2</sub>, P2X<sub>3</sub> or P2X<sub>7</sub>.
45. (withdrawn) A kit according to claim 40 wherein the P2X purinergic receptor expression profile is detected by a colorimetric assay.
46. (withdrawn) A kit according to claim 45 wherein the assay is an ELISA.
47. (withdrawn) A kit according to claim 45 wherein the assay is an RIA.
48. (withdrawn) A kit according to claim 39 wherein the sample is a body fluid.
49. (withdrawn) A kit according to claim 39 wherein the sample is a digital rectal examination exudate.
50. (withdrawn) A kit according to claim 39 wherein the sample is a biopsy sample.
51. (withdrawn) An antibody reagent specific for a P2X purinergic receptor, wherein the reagent is capable of differentiating between pre-neoplastic or neoplastic cells and/or tissue and normal cells and/or tissue.
52. (withdrawn) An antibody reagent specific for a P2X purinergic receptor when used to differentiate between functional and non-functional P2X receptors in cells and/or tissue.
53. (withdrawn) An antibody reagent according to claim 51 or claim 52 wherein the antibody reagent comprises a polyclonal antiserum.

54. (withdrawn) An antibody reagent according to claim 51 or claim 52 wherein the antibody reagent comprises a monoclonal antiserum.
55. (withdrawn) An antibody reagent according to claim 51 or 52 wherein the P2X antibody reagent is specific for P2X<sub>1</sub>, P2X<sub>2</sub>, P2X<sub>3</sub>, P2X<sub>4</sub>, P2X<sub>5</sub>, P2X<sub>6</sub> or P2X<sub>7</sub>.
56. (withdrawn) An antibody reagent according to claim 51 or claim 52 wherein the antibody reagent is specific for P2X<sub>1</sub>, P2X<sub>2</sub>, P2X<sub>3</sub>, or P2X<sub>7</sub>.
57. (new) A method according to claim 9, wherein the antibody reagent comprises a polyclonal antiserum.
58. (new) A method according to claim 9, wherein the antibody reagent comprises a monoclonal antiserum.
59. (new) A method according to claim 9, wherein the antibody reagent is a suite of polyclonal antibodies.
60. (new) A method according to claim 9, wherein the antibody reagent is a suite of monoclonal antibodies.
61. (new) A method according to claim 16 wherein the suite of P2X receptor antibodies comprises a combination of the P2X receptor sub-types antibodies.